ABSTRACT OF THE DISCLOSURE

An IGBT (16) intermittently interrupts a current from a positive terminal (12P) of a DC supply (2) to a workpiece (24). An IGBT (20) intermittently interrupts a current from a negative terminal (12N) of the DC supply (2) to the workpiece (24). A control circuit (32) and a drive signal generating circuit (34) ON-OFF control the IGBTs (16, 20). The control circuit (32) causes the drive signal generating circuit (34) to control the IGBTs (16, 20) in such a manner as to provide a repetition of a cycle consisting of an AC period during which the IGBTs (16, 20) are alternately rendered conductive, and a DC period following the AC period during which the IGBT (16) is rendered continuously conductive. Further, the control circuit (32) and the drive signal generating circuit (34) simultaneously render the IGBT (16) and the IGBT (20) nonconductive and conductive, respectively, at least once during the DC period, and, thereafter, simultaneously render the IGBT (16) and the IGBT (20) conductive and nonconductive, respectively.